REMARKS

Claims 1-22 are currently pending in the subject application and are presently under consideration. Claims 1-4, 10, 11, 14-17, 21 and 22 have been amended as shown at pages 9-11 of the Reply. Claims 6 and 18 have been cancelled. In addition, the specification has been amended as indicated at pages 2-8.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Objection of Claim 19

Claim 19 stands objected to because of the following informalities: as per claim 19, line 1, "a access data store" should be replaced with –an access data store-. Appropriate correction is required. Claim 19 has been amended to correct this informality. Accordingly, this objection should be withdrawn.

II. Rejection of Claims 10, 11 and 16 Under 35 U.S.C §112

Claims 10, 11 and 16 stand rejected because they contain the trademark/trade name "PCI Express". Claims 10, 11 and 16 have been amended to recite the generic name for PCI Express. Therefore, this rejection should be withdrawn.

III. Rejection of Claims 1-22 Under 35 U.S.C. §101

Claims 1-22 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. The Federal Circuit has clearly established in *Eolas Techs., Inc. v. Microsoft Corp.* , 399 F.3d 1325, 1338 (Fed. Cir. 2005) and *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358. (Fed.Cir. 1999) that inventions such as that claimed by applicant are statutory.

> This court must also decide whether software code made in the United States and exported abroad is a "component of a patented invention" under 271(f)... Section 271(f) refers to "components of a patented invention."... Title 35, section 101, explains that an invention includes "any new and useful process, machine, manufacture or composition of matter."... Without question, ***software code alone qualifies as an invention eligible for patenting under these categories***, at least as processes. *Eolas Techs., Inc. v. Microsoft Corp.* , 399 F.3d 1325, 1338 (Fed. Cir. 2005). (Emphasis added).

The Federal Circuit in *Eolas Techs., Inc. v. Microsoft Corp.* clearly established that software code alone is statutory subject matter. Independent claims 1, 14, and 22 recite a ***computer implemented system***. A system by itself is statutory subject matter. By the standards set forth in the above decision, a computer implemented system in the form of software, hardware, or the combination of both clearly falls within the categories of statutory subject matter. Independent claim 21 recites a ***computer component*** and by the same standard as set forth above, this claim falls within the categories of statutory matter.

Furthermore, the subject claims produce a useful, concrete, and tangible result.

> Because the claimed process [method] applies the Boolean principle to produce a useful, concrete, tangible result … on its face the claimed process comfortably falls within the scope of §101. *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358. (Fed.Cir. 1999); *See State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed.Cir.1998) (finding a system implementing a financial management structure satisfied §101 because it constituted a practical application of a mathematical algorithm by producing a useful, concrete and tangible result).

As provided above, the legal standard set forth by the Federal Circuit in *&T Corp. v. Excel Communications, Inc* for determining whether a claim is directed towards statutory subject matter is whether a claim can be applied in a practical application to produce a useful, concrete, and tangible result. Although applicants' representative believes that the determination of whether a request is allowed or rejected is a useful, concrete and tangible result, the claim 17 has been amended to add limitations that use the resulting determination.

In view of at least the foregoing, it is readily apparent that applicant's invention as recited in independent claims 1, 14, 17, 21 and 22 (and associated dependent claims 2-13, 15, 16, and 18-20) is statutory subject matter and produces a useful, concrete, and tangible result. Accordingly, withdrawal of this rejection is respectfully requested.

IV. Rejection of Claims 1, 7-12 and 21-22 Under 35 U.S.C. §102(e)

Claims 1, 7-12 and 21-22 are rejected under 35 U.S.C. §102(a) as being anticipated by Sanfranek *et al.* (US Pub 2004/0193755). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Sanfranek *et al.* does not teach each and every element of the subject invention as recited in the subject claims.

> A single prior art reference anticipates a patent claim only if it expressly or inherently describes each and every limitation set forth in the patent claim. *Trintec Industries, Inc., v. Top-U.S.A. Corp.*, 295 F.3d 1292, 63 U.S.P.Q.2D 1597 (Fed. Cir. 2002); *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The subject invention relates to preventing memory corruption caused in DMA based bus transaction systems by rejecting non-allowed DMA memory requests. The claimed invention employs a data store that contains information about devices, memory ranges, and access attributes to specify allowed and disallowed DMA transactions. This allows a more robust set of control information to be consolidated simple format that provides greater control of DMA memory accesses. In particular, independent claim 1 (and similarly claims 21 and 22) recites an *access data store that stores access information associated with memory, the access data store comprising an access table,* ***the access table comprising a source identifier field, a memory address field and an access attribute field, the access attribute field indicating one of read, read and write, write, and no access for a combination of source and memory range identified in the source identifier and memory address fields****; and.a memory controller that employs the access information to determine whether a requested direct memory access is permitted and rejects the requested direct memory access if it is not permitted.*

Sanfranek *et al.* does not teach or suggest the aforementioned novel aspects of applicant's invention as recited in the subject claims. The cited art discloses a method for preventing non-CPU devices from accessing protected memory. This is accomplished by maintaining a NODMA memory cache where each bit in the cache represents a page of memory. The setting of the bit (0 or 1) determines if the associated memory page is protected. If a memory access request for a page comes from a non-CPU device and the NODMA cache indicates that the page is protected, the access will be denied. However, this provides very fine control of memory pages, but lacks the combined source, memory, and access type control of the subject claim. Specifically, Sanfranek *et al.* fails to teach or suggest and access table comprising a source identifier field, a memory address field and an access attribute field, the access attribute field indicating one of read, read and write, write, and no access for a combination of source and memory range identified in the source identifier and memory address fields.

In view of the foregoing, applicant's representative respectfully submits that Sanfranek *et al.* fails to teach or suggest all limitations of the subject invention as recited in independent claims 1, 21, and 22 (and claims 7-12 that depend there from), and thus fails to anticipate the claimed invention. Therefore, withdrawal of this rejection is respectfully requested.

V. Rejection of Claims 2-6 and 13-20 Under 35 U.S.C. §103(a)

Claims 2-6 and 13-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sanfranek *et al.* (US Pub 2004/0193755) in view of Kondratiev *et al.* (US Patent 6,922,740). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Sanfranek *et al.* and Kondratiev *et al.*, alone or in combination, do not teach each and every element of applicants' invention as recited in the subject claims.

> To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP §706.02(j). The teaching or suggestion to

> make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *See In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Independent claim 14 (and similarly independent claim 17) recites *a memory controller that includes an access table store that stores access information associated with memory,* ***the access information comprising at least one source identifier, at least one memory address and at least one access attribute, the at least one access attribute indicating one of read, read and write, write, and no access for a combination of source and memory range identified by the at least one source identifier and at least one memory address,*** *the memory controller employs the access information to determine whether a requested direct memory access is permitted and rejects the requested direct memory access if it is not permitted.* Independent claims 14 and 17 recited similar limitations to independent claims 1, 21 and 22, and claims 2-6 depend from independent claim 1. As noted *supra*, Sanfranek *et al.* does not teach or suggest each and every element of the subject invention as recited in these independent claims and Kondratiev *et al.* fails to make up for the deficiencies of Sanfranek *et al.* with regard to these independent claims. Kondratiev *et al.* teaches a system for controlling DMA access from devices. The cited art discloses a table that contains rows containing device ID, read memory range, write memory range and duration. This provides an access control list that indicates memory ranges a device is allowed to access. However, the table only indicates memory ranges that are allowed access. The access attribute on applicant's claimed invention provides both allowed and disallowed access information including access type. This provides allowed and disallowed control information to be stored together, as well as providing both types of information for a single device. For example, the table can have an entry for device A indicating read access for memory range X and another entry for device A indicating no access for memory range Z. Kondratiev *et al.,* like Sanfranek *et al.*, fails to teach or suggest at least one access attribute, the at least one access attribute indicating one of read, read and write, write, and no access for a combination of source and memory range identified by the at least one source identifier and at least one memory address.

Accordingly, applicants' representative respectfully submits that Sanfranek *et al.* and Kondratiev *et al.*, alone or in combination, fail to teach or suggest all limitations of applicants'

invention as recited in independent claims 1, 14 and 17 (and claims 2-6 and 13, 15, 16, and 18-20 that depend there from) and thus fails to make obvious the subject claimed invention. For this reason, this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP553US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN & TUROCY, LLP

/Himanshu S. Amin/
Himanshu S. Amin
Reg. No. 40,894

AMIN & TUROCY, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731